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A BRIEF

ESSAY

ON THE

NATURE of BOGS,

AND

The Method of Reclaiming them.

HUMBLY ADDRESSED

TO THE

Right HONOURABLE and HONOURABLE the

DUBLIN SOCIETY,

By their Grateful and Faithful Servant,

HENRY BROOKE.

DUBLIN:

Printed by S. POWELL in *Dame-Street*, and by Order of the DUBLIN SOCIETY. M,DCC,LXXII.

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Nature of Bogs, and the Method of reclaiming them.

I HAVE heard it eſtimated by ſeveral judicious and accurate Calculators, that near a fourth of this Kingdom is overſpread with Bogs. This not only deducts near a fourth from the National value of Lands, but the Evil is further aggravated by intercepting the Benefits of Commerce, and Communication between Market and Market, and between Man and Man.

It is next of melancholy conſideration and fearful tendency to Poſterity, that this Evil daily encreaſes, and that the collective quantities of all the Bogs that have ever been reclaimed in the compaſs of any year, within this Kingdom, ſcarce amount to a Tenth of the Bogs that have grown and encroached on adjacent Grounds within the ſame term.

To make this evident, it is to be conſidered that there is a gradual aſcent in every Bog, from the circumference, or utmoſt borders, to the centre thereof. This has frequently been demonſtrated by the Spirit and Mercury Levels; and it is alſo further apparent from the natural Guts or Channels that tend, on every ſide, from the centre to the extremities, and evacute the water that falls from the Elements; for, if this were not the caſe, every Bog would be a Lake.

Now, as every Bog riſes from its verge to its centre, every Bog has alſo a perpetual Preſſure or Gravitation from its Centre to its Confines; and this preſſure or gravitation is yearly encreaſed by the yearly acceſſion of Matter that the Bog acquires.

In every exhalation of vapours from the Earth, it is not the aqueous element alone, that is actuated by the Heat and borne aloft by the Winds. An infinity of oily, nitrous, ſulphurous, and even of terrene particles (ſo finely attenuated as to come within the powers of Exhalation) are contained within the minute watry bubbles or bladders that ſerve them as winged chariots wherein they mount and ſcale the upper Regions; where gathering, and conglobing, and ſhrinking from the Cold, they become too ponderous for the Atmoſphere, and again deſcend in rain or dews, wherever they may happen to light.

Now, when ſuch Rains or Dews happen to deſcend upon our Bogs, all the nitrous, ſulphurous, oily, and earthy particles are either entangled and retained by the moſſy and frizled Vegetation, or ſink

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ſink and ſubſide within the body of that Water with which the Surface or upper Stratum of our Bogs is repleniſhed. Inſomuch that when the next Exhalation arrives, the heat of the Sun and the action of the Air have nothing offered to their Powers, ſave Water alone; while the Bog, like a Miſer, is obſtinately tenacious of all other Matters, and refuſes to reſtore any part of thoſe treaſures which it derived from the drier and richer Grou ds.

It is further evident to all obſerving Enquirers, that the continual acceſſion of the ſaid nutritive Matter, which is yearly received and retained by our Bogs, cauſes a yearly Growth or additional Stratum of the coarſe, ſpirey, fungous, and moſſy Vegetation which we find thereon; ſo that in cutting the ſurface or upper Sod, with a fine and keen inſtrument, you may in many places diſtinguiſh between the Strata of ſeveral ſucceſſive years, ſo as to number them like the yearly growths in the horns of Kine.

Let us ſuppoſe then that the thin Stratum or Layer, which is produced by the ſaid annual and ſucceſſive vegetation, barely riſes to the tenth diviſion of an Inch in thickneſs; yet this, in a Succeſſion of four thouſand years from the Deluge, will amount to a Depth of thirty three feet and four inches. And this encreaſing Depth, by its unremitting preſſure and gravitation on all ſides, hath already overſpread all the low grounds that were adjacent, hath gained upon and buried large Foreſts within its womb, hath probably the ruins of many Towns at the bottom, and certainly contains the bones of every ſpecies of Animals, with the proofs of priſtine Manufactures, and Articles

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in uſe many centuries paſt, which have been frequently taken up from an amazing profundity.

I have hitherto only ſpoken of Bogs in the general, or rather of that particular ſpecies of Bog which hath ſo widely overwhelmed near a Fourth of the Land, to an extent, in ſome places, of above thirty miles in length and ten miles in breadth, and this ſpecies goes univerſally by the name of red Bog. But, there is another kind of Bog called black Bog, and this is readily reformable, at ſmall coſt and trouble, into the moſt prolific of all ſorts of Soil. It is comparatively dry and firm under foot, and produces a kind of herbage that is richer, and much ſooner reducible to a ſtate of Corruption than the tough and fibrous vegetation whereof red Bogs are compacted. This Species is incomparably ſhallower than our red Bogs, in the general from four to ſix or eight feet, and very rarely exceeds twelve feet in Depth. At the Bottom are frequently found rich Beds of various Marles; and it is of this kind of Bog that the Natives make their hand-turf, the ſubſtance thereof being too brittle for cohæſion under the caſt of a Slane.

I preſume that the radical reaſon of the difference between theſe two kinds of Bogs was, that the black Bog originally roſe on the more luxuriant Soil, and thence acquired an herbage which, through its greater rankneſs, became, from year to year, the more ſpeedily reducible to a ſtate of earthineſs and denſity. It is obſervable, however, that all black Bogs, in proportion to their Depth and Extent, approach nearer and nearer to the Species of the Red. And to me it is indiſputable that, in a proceſs of ſome Centuries, all our black

Bogs,

Bogs, if not taken in ſeaſon, will become as ſterile, drenched, and untractable as our red Bogs are at preſent.

I am not indeed ſo happy as to have any black Bog within my Concerns; and I conclude, from repeated experience, that all the parcels of Bog that have hitherto been reclaimed within this Kingdom, and for which your Society has granted ſeveral lucrative as well as honorary Rewards, have been of the black Species; foraſmuch as I never knew or heard of a ſingle Acre of red Bog thoroughly reclaimed, by draining, tearing up, burning, and gravelling, &c, the methods uſually practiſed with ſo much ſucceſs in the reduction of black Bog, where the parts, being unconnected, ſuffer the water to paſs, and, by being already in a ſtate of corruption, are the better prepared for a ſtate of Vegetation. But theſe ſort of Bogs are neither frequent nor of conſiderable extent, they may amount, as I ſuppoſe, to about a thouſandth part of the Bogs of *Ireland*.

I come now to conſider the cauſes of the many diſappointments and loſſes which I formerly underwent, in my ſeveral attempts and experiments for the reclaiming of red Bog.

I firſt began by cutting wide and deep Drains, on a Concern which I held ſome miles diſtant from the Farm where I now reſide. I confidently expected that the water of the Bog would ooze through the ſides and iſſue from the bottom of the drains I had made, eſpecially where I dug ſo deep as to reach the Channel. But, after a year elapſed, I found, to my great ſurpriſe, that no water had paſſed through the ſides or from the bottom, and

that

that the Bog remained as wet and ſpewy as ever, even within a few feet of the verge of the Drains.

As I did not yet comprehend the reaſon of my defeat on that occaſion, I truſted to ſucceed better by changing my meaſures. Accordingly, I cut a number of ſmall parallel and tranſverſe Drains, of about 3 feet wide by 2 in depth, and theſe ſuperficial Drains hath ſuch an effect that, toward the cloſe of Summer, the Spaces that lay within them grew firm enough for Cattle to tread upon; but, in the enſuing winter, they became and continued nearly as much drenched as before.

I was not yet totally diſcouraged thereby. On the return of the dry Seaſon I made a variety of experiments. I tore up part of my Bog with the Plough. Part I covered with clay and gravel. Part I covered with Slutch. And part I ſtript entirely of the upper Stratum, and, cutting it into ſmall Sods, I had them ſet on end, in footings, with the purpoſe of burning them into Aſhes; but, though they ſtood drying during the whole ſummer, they were of ſo ſpungy a nature, and ſo retentive of the moiſture that was lodged within, that I was obliged to make uſe of turf in reducing them to aſhes, which, however, they yielded in ſo very ſmall a quantity, as ſcarce ſerved for a thin ſprinkling over the Soil from whence they were taken. On thel part of which I had covered with Slutch there ſoon appeared many ſhoots of a rich and vigorous herbage; and even through the clay and gravel the graſs began to peep, though of a ſtarved and ſpirey ſpecies. But the repeated drenchings of the two ſubſequent winters reduced the Whole of my Operations almoſt to their priſtine State.

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In the year 1766, on removing to the Concern where I now live, a Patch of red and ſpungy Bog, of the content of about two Acres, and from 8 to 18 feet in depth, roſe like an Iſland within a large Curragh or Quagmire. And, as it was ſituated in full view of my houſe, it appeared ſuch an offence that I determined to reclaim it, be the coſt what it would. I accordingly cut Drains acroſs and around it, ſo as to make a ready conveyance of all water from the ſurface; and I repeatedly laid upon it ſuch a variety and ſucceſſion of rich Manures as hath, at length, improved it into excellent Meadow, and it now bears a coat of ſuch verdurous and luxuriant graſs as is not to be equalled within ſeveral miles. But, I do not ſet this method forth as a Precedent to others; ſince a new Soil, ſo ſuperinduced, may at any time make a Garden even of Rock.

After ſuch a variety of repeated diſappointments, I grew ſtudiouſly inquiſitive into the cauſe thereof. Some of my People had left two Bog-holes, from whence they had lately taken their turf; and they left a Partition of about four inches in thickneſs between them. The winter rains ſoon after filled them both to the brim, and I particularly remarked that the ſurface of the One lay about ten inches lower than the ſurface of the Other. This I firſt aſcribed to the conſtant flowing in of the water upon the higher Hole that was next the Bog, without allowing it leiſure to philtrate through the ſaid ſlender diviſion and empty itſelf into the lower One. But, during the ſucceeding Summer I was particularly attentive, and I found, at the end of the Seaſon, that the water

water of the higher hole had nearly preſerved its reſpective elevation, and had in no meaſure imparted itſelf to the lower One, though divided from it by ſo very thin a Partition.

It was now apparent to me that the Subſtance, whereof a red Bog is conſtituted, is of all earth (unmanufactured) the moſt continent of any fluid that ſhall happen to fill it. I reflected that a moſſy turf, of but a few pounds in weight, though expoſed to the Wind and Sun through the proceſs of a burning Summer, will ſtill with-hold a conſiderable portion of internal moiſture, while the oily Particles with which it is impregnated (and which make it ſo inflammable when once dried) wait like ſo many Centinels at the ſeveral outlets whereby the water ſhould iſſue, and forbid it to paſs.

Hence it became evident that to drain a red Bog, further than ſuperficially, was utterly impracticable. Again it was evident that for a conſiderable depth, the textured matter thereof was too much dilated to yield a ſupply of nouriſhment to any ſpecies of vegetables, ſave ſuch ſtarved rubbiſh as naturally grows therefrom. And laſtly I had found, by woful experience, that the fall and long reſidence of the winter Rains had deſtroyed the virtue of the Manures I had put thereon, by chilling and preventing that fermentation which accompanies and is neceſſary to every rich and uſeful Growth.

Thus far, like a Shipwreck'd Mariner, or ſome ſeduced Damſel, my Miſcarriages may ſerve as a uſeful Leſſon to others; to point out the Rock

upon

upon which I ſplit, or ſhew the error of thoſe paths in which I went aſtray, and ſo to ſave them from lapſing into the like Calamity.

Vexed to be thus defeated in all my ſchemes and expedients, I finally reflected that, if I had the power of reverſing my Bogs, or of turning the bottom upward, I ſhould then have the richeſt land of any man in the Kingdom; foraſmuch as the lower you ſink toward the bottom of red Bog, the nearer the tough fibres, whereof it is compacted, approach to a ſtate of Seperability or Corruption, and Corruption is the moſt prolific Mother of a luxuriant Vegetation.

I conſidered that, as Bog conſiſts of the fineſt, the moſt nutritive and volatile parts of the Earth, exaled and derived from all other Lands, could it be reduced to a tendency toward its original ſtate, it muſt of neceſſity exceed all other Lands in fertility.

For this purpoſe I conceived a project of executing, in a meaſure, the very thing I had wiſhed, that is to ſay of placing the bottom of my Bog on the top. I cut two paralliel trenches of about 6 feet wide, leaving a ſpace of two perches or 42 feet between them. I then took the upper moſſy ſods which I had ſtripped from the trenches and, with them, filled and levelled the ſeveral vacuities which the water had formerly occupied. Then, cutting deeper, and deeper, I raiſed the middle of the ſpace between the trenches with the ſtuff that came next to hand; till arriving at a ſubſtance that was mellow and rank, I covered the Whole therewith; and now, the declenſion is ſuch, that no water can reſt thereon, ſo as to prevent fermentation.

on, or ſtarve the roots of any Vegetable. This I did in the laſt Seaſon, and the ſtuff which I threw up is already ſo well reduced and meliorated by the Elements, that, with the ſmall addition of ſome apt Manures, it is prepared for a rich production of any Grain, Turnips, Rape, or other kind of Vegetation, to which, in the enſuing Spring, I may be pleaſed to apply it.

Thus, I found that the inveſtigation of a diſeaſe is neceſſarily preparative to all attempts at a Cure; and that a thorough diſcovery of the nature of the diſtemper, will beſt inſtruct us how to counteract the Evil, and may not only open a way for the reſtoration of health, but may tend, in ſkilful hands, to advance the Patient to a ſtate of better Sanity than ever.

I admit that the above method of reclaiming Bog, however effectual, is ſomewhat expenſive, and coſt me at the rate of near ten Pounds the Acre; but, in the iſſue it will comparatively be found exceeding cheap; foraſmuch as it ſaves the far greater coſt and toil of reducing the upper Strata into aſhes, or of covering the Whole with a new additional ſoil derived from diſtant Grounds; to ſay nothing of the charge of *draining*, which muſt be common to all caſes where Bog is to be reclaimed. I conceive however that this Matter might be executed at ſmaller coſt, and with better expedi ton than I have yet put in practice. For this purpoſe I would adviſe future Adventurers in this way to enlarge the middle Space, between the trenches, from two to three, four, five, or even ſix Perches in breadth, eſpecially where the Bog is of ſuch a profundity as to require deep digging before the denſe or fructive matter may be attained. In ſuch caſe

caſe it will be expedient to make uſe of turf-barrows for conveying the ſtuff from either ſide to the Center; and the bordering trenches alſo muſt be proportionably widened to admit of being ſunk to the requiſite depth.

I aver that I can get three guineas per Acre for ſome Acres of red Bog, that I have barely reclaimed into Meadow, the leaſt eſtimable Produce to which it can be applied. Suppoſing then that the coſt of Reclaiming ſhould have amounted to twenty one guineas the Acre, this however will be no more than a ſeven years Purchaſe. But, ſhould the method above propoſed reduce the charge to ten guineas and a half per Acre, as I am confident it will, this will not amount at furtheſt to a four years purchaſe.

It is further to be obſerved that, by this method of reclaiming Bog, the ſubſtance ſo caſt upward and expoſed on the ſurface will, yearly and daily improve and refine through that Attrition and mellowneſs which it will acquire from the Elements, ſo that, with ſome addition of other Manures, it may ſhortly be made as capable as any Garden whatever of all Vegetables ſuited to the uſe of Man or Beaſt. The more that Bog is exerciſed by the Plow, Harrow, Spade, Rake, or other Utenſil, the richer it becomes and the more fruitful it is made; ſo that an Acre thereof, when ſowed or ſet with Cabbage, Carrots, Parſnips, Hemp, Rape, &c, &c, may yield a yearly encreaſe of the value of ten or fifteen Pounds, according to the degree with which it has been cultivated.

To prove the foregoing Allegations, particularly with reſpect to the nature of our Bogs, the manner

ner of their Growth, and the Subſtance whereof they conſiſt; let any Perſon encloſe a portion of his level Grounds, ſo as it may be ſaturated with a moderate degree of moiſture from the Elements, without being parched and dried up by the Sun and Wind on the one hand, or wholly flooded and drowned by the Rains on the other. Let it neither be paſtured nor cultivated but ſolely left to its natural Occupation of Bog-making; and, in a very few years, he will find himſelf in poſſeſſion of a young and thriving Bog of his own begetting; from whence his Progeny, in the ſecond or third deſcent, may have as good turf as any the Kingdom affords. But, I would recommend the practice of this Scheme to the Royal Society in *England* (where Firing in moſt places is ſo ſcarce and coſtly) rather than to your Lordſhips and Honours, who have Bogs in ſufficient plenty and ſomething to ſpare.

In fine, our Bogs muſt either have been produced in the way I have ſet forth, or God muſt, in their favour, have daily repeated a Creation of new Matter; a Suppoſition as profane as it is needleſs and abſurd. *Nec Deus interſit, &c.*—Let not God, ſays *Horace* be introduced as an Agent, ſave where the Occaſion is worthy an act of Omnipotence.

I am not inſenſible that all Projects, with their Projectors, are held in a kind of contempt, and are become a ſubject of ridicule even to the Vulgar. And yet, without ſuch Projectors, the World muſt have remained to this very day in a ſtate of Ignoance, Inaction, and Inutility. Many indeed have raiſed Fortunes, by proceeding in the track and example of thoſe who had been ruined by expending their Time and Subſtance in the Precedent; but

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the Public have been benefitted by the iſſue; and it is the province of the Patrons of Mankind to countenance Schemiſts, and to render their ſufferings as light as poſſible by rewarding every inſtance of their Succeſs.

I have laſtly to obſerve that your SOCIETY, by the reclaiming of Bog, will derive to yourſelves incomparably higher Merits than by the reformation or cultivation of any other Grounds. Our Bogs are worſe than uſeleſs, they are actually the greateſt Nuiſance that the kingdom contains. All other Matters of utility propoſed by your Patriotiſm are barely matters of additional advantage to the Public, an encreaſe of ſome previous Benefit; but the Reclaiming of our Bogs will be a new Subject of Thanks to You; a matter of total triumph unknown to our Forefathers; a kind of Creation; a freſh acceſſion of Lands to *Ireland*, of benefit to Mankind, of future Suſtenance and Riches to ſucceeding Generations, and of Acknowledgment to your SOCIETY, by the lateſt Poſterity.

H. BROOKE.

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